proof

# PROOF FIX SPECIFICATION

Version 1.0

Updated: April 2021

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# OVERVIEW

This specifications document outlines the format in which Proof Services LLC customers should correctly format their FIX messages for order entry as well the expected format for execution messages received back from Proof. Proof supports FIX 4.2 as a base protocol, with Proof-specific modifications detailed in this specification.

# FIX TAGS

This section lists the FIX tags and values supported while transacting with Proof.

## Session FIX Tags

### Header

| Tag | Field Name | Details | Guidelines |
|---|---|---|---|
| 8 | BeginString | Identifies beginning of new message and protocol version 4.2.<br>ALWAYS FIRST FIELD IN MESSAGE | |
| 9 | BodyLength | Message length, in bytes, forward to the CheckSum field. ALWAYS SECOND FIELD IN MESSAGE. | |
| 35 | MsgType | Defines message type.<br>ALWAYS THIRD FIELD IN MESSAGE.<br>Supported values: 0=Heartbeat<br>1=Test Request<br>2=Resend Request<br>3=Reject<br>4=Sequence Reset<br>5=Logout<br>8=Execution Report<br>9=Order Cancel Reject<br>A=Logon<br>D=Order Single<br>F=Order Cancel Request<br>G=Order Cancel/Replace Request | |
| 34 | MsgSeqNum | Integer message sequence number | |
| 49 | SenderCompID | Assigned value used to identify the firm sending the message | |
| 50 | SenderSubID | Assigned value used to identify specific message originator | |
| 52 | SendingTime | Time of message transmission (always expressed in UTC (Universal Time Coordinated, also known as "GMT")) | YYYYMMDD-HH:MM:SS.sss<br>(sss indicating milliseconds) |
| 56 | TargetCompID | Counterparties will target “PROOF” or agreed-upon value | |
| 57 | TargetSubID | Assigned value used to identify specific individual or unit intended to receive message | |

### Trailer

| Tag | Field Name | Details | Guidelines |
|---|---|---|---|
| 10 | CheckSum | Three byte, simple checksum.<br>ALWAYS LAST FIELD IN MESSAGE; i.e., serves, with the trailing <SOH>, as the end-of-message delimiter. Always defined as three characters. | |

### Duplicate Messages

| Tag | Field Name | Details | Guidelines |
|---|---|---|---|
| 43 | PossDupFlag | Indicates possible retransmission of message with this sequence number | Default: Not sent. Only required for resend messages (PossDup or PossResend) |
| 97 | PossResend | Indicates that message may contain information that has been sent under another sequence number | |
| 122 | OrigSendingTime | Original time of message transmission (always expressed in UTC (Universal Time Coordinated, also known as "GMT") when transmitting orders as the result of a resend request | |

## Order Transaction FIX Tags

### New Order Single

| Tag | Field Name | Details | Guidelines |
|---|---|---|---|
| 1 | Account | If sent by customer, this value will be echoed back in execution reports | Max length: 32 chars |
| 11 | ClOrdID | Unique identifier, per session, per trading day for Order as assigned by the counterparty | Max length: 32 chars |
| 38 | OrderQty | Number of shares ordered | 1-10,000,000 |
| 40 | OrdType | 1=Market<br>2=Limit | Price (44) must be populated for Limit orders |
| 44 | Price | Required for Limit Orders | The Minimum Price Variation (“MPV”) is $0.01 for orders priced $1.00 or greater, and $0.0001 for orders priced below $1.00. |
| 54 | Side | Side of Order<br>1=Buy<br>2=Sell Long<br>5=Sell Short | When [5]=Sell Short, LocateReqd (114) must be populated with [N], and LocateBroker (5700) must be populated with the identifier of the broker who provided the locate. |

| | | | |
|---|---|---|---|
| 55 | Symbol | Ticker symbol | INET and CMS symbology supported (See Appendix A) |
| 58 | Text | Free form text. Will not be processed and will not be echoed back on execution reports. | |
| 59 | TimeInForce | 0=Day | Tag 168 (EffectiveTime) and tag 126 (ExpireTime) are supported. |
| 60 | TransactTime | Time of order creation (expressed in UTC)). | YYYYMMDD-HH:MM:SS.sss |
| 65 | SymbolSfx | Additional information about the security (e.g., preferred, warrants, etc.). | Suffix only when using CMS Symbology (See Appendix A) |
| 114 | LocateReqd | Required for Sell Short orders. N=Locate not required | [N] is the only accepted valid value. |
| 115 | OnBehalfOfCompID | Assigned value used to identify firm sending message. | |
| 126 | ExpireTime | Must be today's date with a valid value within the remaining trading day. | |
| 168 | EffectiveTime | Must be today's date with a valid value within the remaining trading day. Must be before ExpireTime. | |
| 847 | TargetStrategy | 1001=VWAP<br>1002=Proof<br>1003=Custom | |
| 5700 | LocateBroker | Required for Sell Short orders. Identifier of the broker who provided the locate (MPID preferred). | Free Text (Max 4 chars) |
| 20001 | MustComplete | Algo Parameter, Boolean Value | N = (default) order may or may not complete<br>Y = order must complete if able to |
| 20002 | LowCost | Algo Parameter, Boolean Value | N = (default) standard routing logic<br>Y = cost effective routing logic |
| 20004 | Custom | Algo Parameter, Text | Free Text (Max 128 chars) |

## Order Cancel / Replace Request

The only amendable properties of Proof orders are:

- Order Quantity (38)
- Price (44) – for Limit Orders
- OrdType (40) – from Market to Limit, and vice-versa

Bold tags in the tables below are required

| Tag | Field Name | Details | Guidelines |
|---|---|---|---|
| **35** | **MsgType** | **G** | |
| **11** | **ClOrdID** | **Unique ID of cancel/replace request** | |
| **38** | **OrderQty** | **Requested total shares for order to be amended to** | |
| **40** | **OrdType** | | |
| **41** | **OrigClOrdID** | **ClOrdID referencing the order to be replaced** | |
| **54** | **Side** | **Must match original Side** | |
| **55** | **Symbol** | **Must match original Symbol** | |
| **59** | **TimeInForce** | **Must match original TimeInForce** | |
| **60** | **TransactTime** | **Time of cancel/replace creation expressed in UTC** | **Must be today's date** |
| 44 | Price | Requested price for the order to be amended to | |
| 65 | SymbolSfx | Must match original SymbolSfx, if applicable | |
| **847** | **TargetStrategy** | **Must match original TargetStrategy** | |

### Order Cancel Request

| Tag | Field Name | Details | Guidelines |
|---|---|---|---|
| **35** | **MsgType** | **F** | |
| **11** | **ClOrdID** | **Unique ID of cancel request** | |
| **41** | **OrigClOrdID** | **ClOrdID referencing the order to be cancelled** | |
| **55** | **Symbol** | **Must match original symbol** | |
| **60** | **TransactTime** | **Time of cancel/replace creation expressed in UTC** | |
| 65 | SymbolSfx | Must match original SymbolSfx, if applicable | |

### Execution Report / Cancel Reject Messages

| Tag | Field Name | Details | Guidelines |
|---|---|---|---|
| 6 | AvgPrice | Calculated average price of all fills on this order | |
| 11 | ClOrdID | Will match last confirmed ClOrdId of the order chain | |

| | | | |
|---|---|---|---|
| 14 | CumQty | Total number of shares filled | |
| 17 | ExecID | Unique identifier of execution message | Case sensitive alphanumeric free format string. Max 32 chars. |
| 20 | ExecTransType | Identifies transaction type<br>0=New<br>1=Cancel | |
| 29 | LastCapacity | 1=AGENT | |
| 30 | LastMkt | Market of execution for last fill. | 4 char market mnemonic |
| 31 | LastPx | Price of this (last) fill. | |
| 32 | LastShares | Quantity of shares executed on this (last) fill. | |
| 37 | OrderID | Unique Proof Order ID (same value for all messages across an order chain) | |
| 38 | OrderQty | Current order quantity | |
| 39 | OrderStatus | 0=New<br>1=Partial fill<br>2=Fill<br>4=Canceled<br>5=Replaced<br>6=Pending Cancel (e.g., result of Order Cancel Request) 8=Rejected<br>E=Pending Replace (e.g., result of Order Cancel/Replace Request) | Identifies current status of order. |
| 40 | OrdType | OrdType of the order | |
| 41 | OrigClOrdId | ClOrdId of the order referenced (for Cancel and Cancel/Replace reuests | |
| 44 | Price | Current limit price of the order, if applicable | |
| 47 | Rule80A | Rule80A received on the order, or 'Agent' by default | |
| 54 | Side | Side of the order | |
| 58 | Text | Free Text Field; may contain contextual info or further details on any order or cancel/replace rejections | Max 32 chars |
| 102 | CxlRejReason | 0=Too late to cancel<br>1=Unknown order<br>2=Broker Option<br>3=Already Pending Cancel or Pending Replace | Code to identify reason for cancel rejection. |
| 103 | OrdRejReason | 0=Broker Option<br>1=Unknown Symbol<br>2=System Closed<br>3=Order Exceeds Limit | |

| | | | |
|---|---|---|---|
| | | 4=Too Late To Enter<br>5=Unknown Order<br>6=Duplicate Order | |
| 126 | ExpireTime | ExpireTime of the order, if specified | |
| 128 | DeliverToCompID | Assigned value used to identify firm the message is intended for. | |
| 150 | ExecType | 0=New<br>1=Partial fill<br>2=Fill<br>4=Canceled<br>5=Replace<br>6=Pending Cancel (e.g., result of Order Cancel Request)<br>8=Rejected<br>D=Restated<br>E=Pending Replace (e.g., result of Order Cancel/Replace Request) | Describes the specific Execution Report (e.g., Pending Cancel) while OrdStatus will always identify the current order status (i.e., Partially Filled) |
| 151 | LeavesQty | Number of shares open for further execution. | |
| 168 | EffectiveTime | EffectiveTime of the order, if specified | |
| 434 | CxlRejResponseTo | 1=Order Cancel Request<br>2=Order Cancel/Replace Request | Identifies the type of request that a Cancel Reject is in response to. |
| 851 | LastLiquidityInd | 1=Added Liquidity<br>2=Removed Liquidity<br>3=Routed | Identifies source of execution and whether an execution resulted from liquidity provision or removal (passed through from Execution Venue). |
| 9730 | TradeLiquidityIndicator | Passed through from Execution Venue (see individual venue specs to decipher values) | To be used in conjunction with LastMkt(30) to determine trading costs. |
| 9882 | FeeCode | Specific fee code associated with execution. Passed through from Execution Venue (see individual venue specs to decipher values) | To be used in conjunction with LastMkt(30) to determine trading costs. |

# APPENDIX A: SYMBOLOGY

Orders may be entered using the following tag / symbology:

1. Tag 55 using Nasdaq Integrated (INET) symbology (as seen here: http://www.nasdaqtrader.com/dynamic/SymDir/nasdaqlisted.txt)
2. Tag 55 using CMS format with a SPACE as the delimiter between the root and suffix (as used by CAT symbol master: https://files.catnmsplan.com/symbol-master/FINRACATReportableEquitySecurities_SOD.txt)
3. Tag 55/65 using CMS format

Translation between CMS and INET symbology can be accomplished using: http://www.nasdaqtrader.com/trader.aspx?id=CQSsymbolconvention

Some examples:

| ***Security*** | ***INET Symbology*** | ***CMS Symbology*** | ***CMS Symbology with Suffix Tag*** |
|---|---|---|---|
| *Berkshire Class B* | 55=BRK.B | 55=BRK B | 55=BRK, 65=B |
| *Ares Acquisition Corp Warrants* | 55=AAC+ | 55=AAC WS | 55=AAC, 65=WS |
| *Ares Acquisition Corp Units* | 55=AAC= | 55=AAC U | 55=AAC, 65=U |
| *Morgan Stanley Preferred Series F* | 55=MS-F | 55=MS PRF | 55=MS, 65=PRF |
| *Bristol-Myers Squibb Rights* | 55=CELG^ | 55=CELG RT | 55=CELG, 65=RT |
| *International Flavors When Issued* | 55=IFF# | 55=IFF WI | 55=IFF, 65=WI |
| *Gabelli Utility Trust Rights When Issued* | 55=GUT^# | 55=GUT RTWI | 55=GUT, 65=RTWI |
| *DuPont When Distributed* | 55=DD$ | 55=DD WD | 55=DD, 65=WD |

# APPENDIX B: LAST MARKET VALUES

Below are some of the last market values that may be sent back over the session. Other values may be added by market centers or Proof at their discretion:

ARCA
ARCX
BATS
BATY
EDGA
EDGX
EPRL
IEXG
ISLD
LTSE
MEMX
NSDQ
XASE
XBOS
XCHI
XCIS
XNAS
XNGS
XNYS
XPHL

# REVISION HISTORY

| Version | Date | Author | Change |
|---|---|---|---|
| 1.0 | April 12, 2021 | Prerak Sanghvi | Document created with the first algos (1001-1003) and 3 algo parameters: Must Complete, Low Cost, Custom. |